

Claims

1. A method of preparing an electrophoretic support wherein at least one portion of the surface of a member (hereinafter "support member") for supporting an electrophoretic matrix and coming into contact with said electrophoretic matrix is washed, and said matrix is then supported by said support member, characterized in that said support member comprises a silicon-containing material and at least a part of said washing is conducted with a weak alkali solution.
2. The method of claim 1 wherein said electrophoretic matrix is a gel or an entangled polymer.
3. The method of claim 1 or 2 wherein said support member has any one from among, or any combination of, the shapes of tabular, columnar (hollow cylinder), granular, or fiber-like.
4. The method of any of claims 1 through 3 wherein said weak alkali solution is an organic solution, an inorganic solution, or any combination thereof.
5. The method of any of claims 1 to 4 wherein said weak alkali solution is an aqueous solution of a carbonate.
6. An electrophoretic gel comprising a polyacrylamide polymer obtained by polymerizing an acrylamide, or a derivative thereof, in the presence of two or more polar organic solvents.
7. The gel of claim 6 wherein said derivative of acrylamide is N,N'-dimethylacrylamide or N-(hydroxymethyl)acrylamide).
8. The gel of claim 6 or 7 wherein said polar organic solvent comprises formamide or an alcohol.
9. The gel of claim 8 wherein said alcohol is methanol.
10. The gel of any of claims 6 to 9 wherein a water-soluble polymer is further present during the polymerization of said polymer of acrylamide or derivative thereof.
11. The gel of claim 10 wherein said water-soluble polymer is dextran, polyethylene glycol, or cellulose.
12. The gel of any of claims 6-11 wherein said gel is a capillary gel or a slab gel.
13. The method of any of claims 1-5 wherein said electrophoretic matrix

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is said gel described in any of claims 6-12.

14. An electrophoretic method characterized in that a support prepared according to the method of claim 1 is employed.

15. The method of claim 14 wherein a substance to be separated by electrophoresis is a water-soluble substance having one, two, or more cationic and/or anionic electric charges, a neutral substance without electric charge, or any mixture thereof, in the form of a solid, slurry, powder, or solution.

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16. The method of claim 15 wherein said substance to be separated by electrophoresis is a nucleic acid.

17. An electrophoretic method of separating nucleic acids or PNA fragments in the presence of a polar organic solvent employing the gel of any of claims 6-12 or a gel prepared according to the method of claim 13.

18. The method of claim 17 wherein said polar organic solvent employed during electrophoresis comprises formamide or an alcohol.

19. The method of claim 18 wherein said alcohol employed during electrophoresis is methanol.

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20. The method of any of claims 16-19 wherein said nucleic acid is DNA or RNA.

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